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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,264	07/19/2000	Aruna B. Kumar	60237	1298

23735 7590 05/29/2003

DIGIMARC CORPORATION  
19801 SW 72ND AVENUE  
SUITE 100  
TUALATIN, OR 97062

EXAMINER
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MILLER, MARTIN E

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 05/29/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

09/619,264

Applicant(s)

KUMAR

Examiner

Martin Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 15.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The examiner has considered the IDS filed March 04, 2003 and an initialed copy is included with this office action.

### ***Response to Amendment***

2. Per Applicant's amendment, claims 17-20 have been cancelled. Claims 1, 4, 7, 13, 15 and 16 have been amended. New claims 21 and 22 have been entered.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 4-6 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lubawy et al., (hereinafter Lubawy), US 6353479.

After further review of applicant's specification and the disclosure of Lubawy, the examiner is interpreting the humanly imperceptible, machine-readable information printed on the paper to be a digital watermark. The examiner is making that interpretation for the following reasons: 1) barcode data is digital data, the lines of a barcode represent binary data to be decoded by a decoder, and 2) the machine-readable information is on the paper.

As per claim 4, Lubawy teaches:

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a paper medium (photo media, col. 1, ll. 39-41, print media, col. 1, ll. 63) carrying a steganographic (invisible to the naked eye, col. 2, ll. 1-2) message, the message including paper control information (color mapping col. 1, ll. 37-53) related to the paper medium that is readable by a machine (machine readable information (barcode), col. 1, ll. 65-66, col. 4, ll. 55-63) from an image captured of at least a portion of the paper medium (margin, col. 2, ll. 3-6), and that is operable to control (col. 7, ll. 1-16) a printer so as to optimize print quality for physical characteristics (col. 1, ll. 63-66) of the paper medium, wherein the steganographic ("invisible to the naked eye", col. 2, l. 2) is encoded as a digital watermark ("machine readable information", fig. 1, element 40, col. 2, ll. 27-28, "media-type information" = "identifier code", then col. 2, ll. 65-66, " the identifier code is comprised of twelve binary data bits").

As per claim 5, Lubawy teaches embedded an identifier code on the paper medium using invisible ink (col. 1, l. 66-col. 2, l. 5).

As per claim 6, Lubawy teaches:

a digital watermark (machine readable information (barcode), col. 1, ll. 65-66, col. 4, ll. 55-63) is repeated throughout at least a portion (margin) of the paper medium (figure 1, col. 6, ll. 4-6).

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubawy, further in view of Rhoads, US 5850481.

As per claim 1, Lubawy teaches:

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a paper medium (photo media, col. 1, ll. 39-41, print media, col. 1, ll. 63) including a surface having a steganographic (invisible to the naked eye, col. 2, ll. 1-2) message encoded thereon ("applied to each sheet", col. 1, l. 67-col. 2, l. 1), the steganographic message including paper control information (color mapping, col. 1, ll. 37-53) related to the paper medium that is readable by a machine (machine readable information (barcode), col. 1, ll. 65-66, col. 4, ll. 55-63) from an image captured of at least a portion of the paper medium (margin, col. 2, ll. 3-6), and that is operable to control (col. 7, ll. 1-16) a printer so as to optimize print quality for physical characteristics (col. 1, ll. 63-66) of the paper medium.

Although, Lubawy teaches that the steganographic message is "applied to each sheet of the media with ink or other marking fluid that is invisible to the naked eye, col. 1, l. 67-col. 2, l. 2, and that "minute holes in the sheet (or notches in the sheet edge)", col. 5, ll. 17-19, may be used for detection (Applicant at page 4, lines 7-9 of the specification states that inks can be used to modulate the surface microtopology of the paper.). Lubawy does not specifically teach that the steganographic message is encoded through modulation of the surfaces microtopology.

However, Rhoads teaches:

steganographic messages being encoded through modulation of the surface's microtopology (col. 16, ll. 61-64 and col. 17, ll. 2-12).

It would have been obvious to one of ordinary skill in the art to read the differences in the microtopology as taught by Rhoads of a media-type surface to provide the printer control information as taught by Lubawy in yet another manner that is both imperceptible and potentially easier to implement than the infrared or ultraviolet reflective inks of Laubawy.

As claim 2, Lubawy teaches:

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wherein the printer control information (barcode, col. 4, ll. ) includes one or more identifiers that are used to look up(col. 2, ll. 32-33, figure 2) printer control information used to optimize printer operation for the paper medium (col. 2, l. 66-col. 3, 6).

As per claim 3, Lubawy teaches:

wherein printer control information (data matrix) includes characteristics information of the paper medium (normal, , col. 3, l. 63, , photo, col. 4, l. 10, transparency, col. 4, l. 21).

As per claim 15, Lubawy teaches:

a paper medium (photo media, col. 1, ll. 39-41, print media, col. 1, ll. 63) carrying a steganographic (invisible to the naked eye, col. 2, ll. 1-2) message, the steganographic message including paper control information (color mapping col. 1, ll. 37-53) related to at least a paper-bleeding coefficient (absorbance, col. 1, l. 29, and Lubawy goes through 3 examples of different types of paper, col. 3, l. 63-col. 4, l. 28 that tell of differences between the types of media) of the paper medium, the printer control information being readable by a machine (machine readable information (barcode), col. 1, ll. 65-66, col. 4, ll. 55-63) from an image captured of at least a portion of the paper medium (margin, col. 2, ll. 3-6), and the printer control information being operable to control (col. 7, ll. 1-16) a printer so as to optimize print quality for paper-bleeding coefficient (absorbance) of the paper medium.

8. Claims 7, 10-13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubawy, further in view of Ta et al., (hereinafter Ta), US 5500715.

As per claim 7, Lubawy teaches:

an image sensor for capturing an image of print media (col. 2, ll. 3-5 and 10-15);

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a steganographic decoder (col. 5, ll. 2-7, 22-25) for reading a steganographic message from the image of the print media (col. 2, ll. 25-28, col. 4, l. 64-col. 5, l. 7), the message including printer control information for optimizing printer operation for the print media (col. 5, ll. 21-25).

However, Lubawy does not teach where an optimization relates to print resolution; But Ta teaches:

wherein optimization relates to print resolution (col. 7, ll. 55-59). Ta teaches Print resolution is a regularly changed printer control parameter due to the wide variety of computer/printer applications (col. 7, ll. 52-55).

Lubawy goes on to teach:

a printer control unit (fig. 1, element 34, col. 4, l. 2-8) in communication with the decoder (col. 5, ll. 2-7, 22-25) for receiving the printer control information and using the information to optimize (via look-up table, col. 5, ll. 35-43) print resolution (Ta, col. 7, ll. 55-59) to accommodate physical characteristics (normal, transparency or photo, col. 3, l. 60-col. 4, l. 27) for the print media.

Lubawy's media-type identifier code is used to as an input to a printer look-up table (col. 2, ll. 31-34) that then uses the information to select the correct print mode for the type of media. Lubawy goes on to teach that the identifier code can also be used for "particular print media that require print modes that are different from other media of the same type" (col. 5, ll. 42-46), so this suggests that various printer parameters can be changed. Ta teaches a system that allows users to choose the printer parameters and that one of those parameters is printer resolution (col. 7, ll. 45-60). It would have been obvious to one of ordinary skill in the art to use the suggestion

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that multiple parameters may have to be changed to accommodate all of the different formats of a single media-type that a more efficient and automated way to accomplish the selection of printer parameters would be to create a specific identifier code for the media and allow the system of Lubawy to automatically set the proper printer parameters.

As per claim 10, Lubawy teaches:

wherein the printer control unit uses the printer control information used to control the operation of the printer (col. 3, l. 60-col. 3, l. 28).

As per claim 11, Lubawy teaches:

including a computer connected to a printer; wherein the decoder comprises program code executing on the computer (figure 1, col. 3, ll. 38-45).

As per claim 12, Lubawy teaches:

wherein the decoder comprises a watermark decoder (col. 2, ll. 10-15, col. 5, ll. 2-8, 21-25).

As per claim 13, it recites substantially the same limitations as claim 7 above and analogous remarks apply. However, two limitations of claim 13 differ from those of claim 7 and need to be addressed.

As stated above in the rejection of claim 4, Lubawy teaches:

providing a digitally watermarked sheet of print to the printer (col. 5, ll. 23-24); wherein a digital watermark in the digitally watermarked sheet of print media is an identifier ("machine readable information", fig. 1, element 40, col. 2, ll. 27-28, "media-type information" = "identifier code", then col. 2, ll. 65-66, " the identifier code is comprised of twelve binary data bits").



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The other limitation taught by Lubawy is: using the printer control information to index (look up table, col. 2, ll. 30-34) corresponding printer operating parameters which relate to physical characteristics of the print media and adapting operation of the printer in accordance with the parameters (col. 2, ll. 40-51, col. 5, ll. 42-51).

As per claim 14, it recites substantially the same limitations as claim 12 above and analogous remarks apply.

As per claim 16, it recites substantially the same limitations as claim 7 above and analogous remarks apply.

9. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubawy and Ta, as applied to claims 7 and 16 above, further in view of Brenner et al., (hereinafter Brenner), US 6318827.

As per claims 21 and 22, Ta teaches that the printer processor will automatically determine the if printer setup menu selections have been set (col. 8, ll. 55-62), but that does not specifically teach optimizing resolution based on print media and neither does Lubawy.

However, Brenner teaches:

wherein the optimal resolution is determined at least in part on an image to be printed to print media (col. 3, ll. 17-24).

It would have been obvious to one of ordinary skill in the art to use the preset print parameters for a specific print mode as taught by Brenner in the look-up table system of Lubawy and Ta to provide a selection of print modes intended to achieve the best quality and that involve the use of media that is susceptible to print quality degradation due to ink drop placement misalignment (Brenner, col. 6, ll. 14-20).

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10. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubawy and Ta as applied to claim 7, further in view of Kim et al. (hereinafter Kim), US 6276771 B1.

As per claim 8, Lubawy does not specifically teach that his ink jet printer is part of a multifunctional device. However, Kim teaches that inkjet printer features can easily be incorporated in a multifunctional device design. Kim teaches:

wherein the image sensor is part of a scanning subsystem in a multifunction device having a printing subsystem (printer module, abstract) and a scanning subsystem (scanner module, abstract) (col. 1, ll. 45-55).

It would have been obvious to one of ordinary skill in the art to utilize the features of Lubawy and Ta in the multifunction office equipment of Kim to eliminate errors and minimize wasting print media and toner that result from manually selecting the wrong print mode. Incorporation of Lubawy's system into Kim's provides consumers who desire multifunction devices to benefit from Lubawy's invention.

As per claim 9, Kim teaches:

wherein the image sensor comprises a CCD Array (col. 3, l. 49).

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Miller whose telephone number is (703) 306-9134. The examiner can normally be reached on Monday-Friday, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

*mem*  
mem  
May 23, 2003

  
AMELIA M. AU  
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TECHNOLOGY CENTER 2600